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ABSTRACT

This publication presents principles of universal playgrounds, designed to maximize accessibility for all children, with and without disabilities. First, the rationale for the universal playground is given including the importance of play and the value of integration. Next current guidelines for playground design are discussed including safety, accessibility, developmental issues, social/emotional development, intellectual development, sensory development, perceptual-motor development, physical development, and age factors. Playground adaptations to improve accessibility are considered for site development, parking and curbs, walkways, and surface treatments. Playground layout is then considered in some detail including standards for equipment clearance, traffic patterns, practical aesthetics, maintenance, and possible equipment. A table lists 36 equipment items, their goals and benefits, description, and possible modifications. Source information (addresses and telephone numbers) for 56 manufacturers and distributors of playground equipment are provided, as are 16 sources of playground surface materials. Sample layouts, a planning survey form, a universal playground action plan checklist, and a list of 10 additional resources complete the publication. (DB)

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UNIVERSAL PLAYGROUND DESIGN

No. 79

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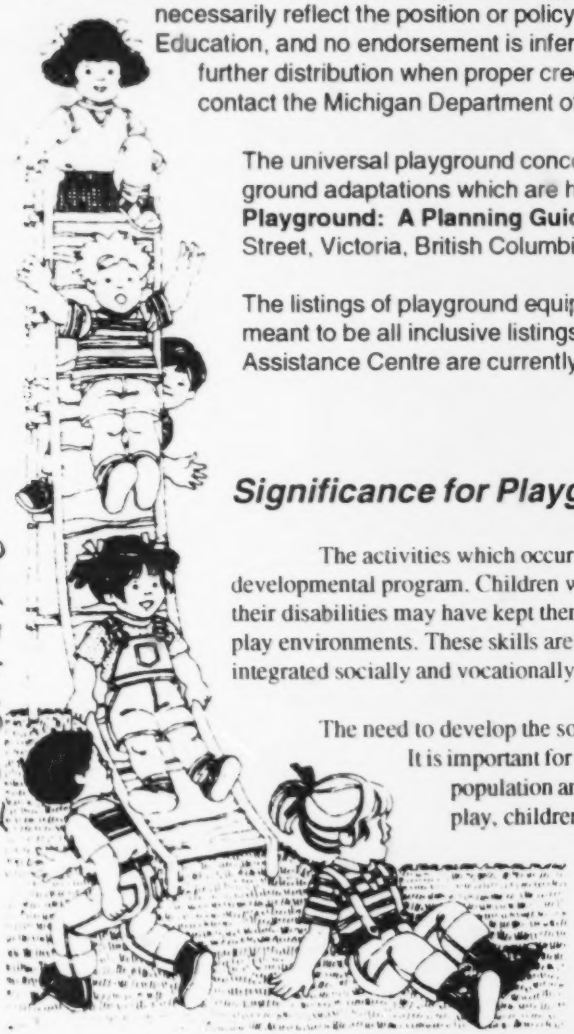
You have in your hands a REPEATER which is representative of the careful and caring work of Sister Kathryn Mullarkey, F.S.E., who has been a PAM staff member for nearly seven years. Sister Kathryn has just been awarded a Master of Arts degree in Rehabilitation Counseling from Michigan State University, and she is leaving us to accept a position with Hope Network in Grand Rapids. We all wish her well in her new position.

This publication, as with so many in the past, has been made available to you through an IDEA State Initiated Grant for the PAM Assistance Centre awarded by the Michigan State Board of Education. (The opinions expressed herein do not necessarily reflect the position or policy of the Michigan State Board of Education or the U.S. Department of Education, and no endorsement is inferred.) The document is in the public domain and may be copied for further distribution when proper credit is given. For further information or inquires about this project contact the Michigan Department of Education, P O Box 30008, Lansing, MI 48909.



The universal playground concept was designed by the Canadian Ministry of Education. The playground adaptations which are highlighted in this PAM REPEATER are documented in **The Universal Playground: A Planning Guide**, Ministry of Education, Special Education Branch, 620 Superior Street, Victoria, British Columbia, CANADA V8V 2M4.

The listings of playground equipment and surface material manufacturers and distributors are not meant to be all inclusive listings, but merely to give ideas from companies that the staff of the PAM Assistance Centre are currently aware of.

EC 302292

Significance for Playground Design

The activities which occur during free play on the playground form a valuable part of any child's developmental program. Children with special needs may benefit to a greater degree from such activities, since their disabilities may have kept them from developing the social and physical skills often learned in informal play environments. These skills are important because they influence the extent to which children will be integrated socially and vocationally.

The need to develop the social skills required to live cooperatively with one's peers is a two way street. It is important for all students to develop a positive awareness of the differences within the school population and the ability to accept these differences with respect and understanding. In free play, children are exposed to an element of give and take which helps define acceptable behavior. Physical activities stimulated by playground equipment improve balance, eye-hand coordination and gross motor skills, all of which need to be encouraged in all children.

A playground must be accessible to all children in order to facilitate these changes.

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Rationale

Philosophical Considerations

• Importance of Play

Play is an essential activity for all children. It is one way children explore their world. It provides an avenue for children to exercise imaginative and creative thinking in a safe, secure setting. When play takes place in a group situation it helps children validate their thinking with that of other children. Through such play activities children develop social maturity. They learn how to cooperate with others, what makes others happy or unhappy and what they must do to obtain the cooperation of others. In play activities, children can learn from their discoveries with minimum risk.

By watching other children, children with special needs determine what activities are possible and might lead to greater enjoyment of the play experience. Children are encouraged to try new activities, and to gain favorable attention by duplicating the activities of others, or exceeding them if possible. By engaging in such interaction, children gain strength, enhance fine and gross motor development, develop coordination and balance, build social relationships, and lay the foundation for a positive self image.

Even solitary play provides an opportunity for children to practice newly learned skills in non-threatening situations. Many authorities feel that good motor, perceptual and social development are critical for learning basic academic skills. The activities which take place on the playground are therefore very important. It is necessary then, that the playground environment should be designed to maximize its potential as a learning aid.

The requirements of children with special needs are as great as those of other children in this respect. Children who are born with, or acquire, disabilities face challenges beyond those of most children. If the playground experience is beneficial for most children, it may also be assumed that it is of equal value to children with special needs. For this to be realized, children with special needs must have equal access to those facilities which promote developmental growth.

• Value of Integration

The universal playground, designed for the full spectrum of developmental abilities, benefits all children and works to the advantage of children with special needs. By most incidence studies, children with special needs represent approximately ten percent of the total school-aged population, and this percentage carries into the total community. This means that individuals with disabilities will always be a significant minority in society. Therefore, society needs to develop the skills and attitudes which enable the minority to make their maximum contribution. The informal environment of the school playground is an excellent place to begin.

Once the playground has been designed to include the entire school population, a number of secondary benefits emerge. In many locations, the school playground is viewed as a community resource. After school, and on weekends it is utilized by a variety of individuals who might not have been anticipated during the initial planning. Parents and grandparents may bring preschool children to the playground for enjoyment and exercise. Day-school supervisors may bring after-school groups to channel their energy before their parents collect them. Even during school hours, teachers who are older or have disabilities find the universal playgrounds designed for all children more accessible and easier to supervise, especially if they want to assist children with special needs.

Current Guidelines

• Safety

Existing guidelines focus primarily on the layout and engineering of playground equipment to maximize the safety of all children involved in play activities. Generally, no unique safety considerations are needed in the playground design for children with special needs that are not also desirable for able bodied children. Safety features for children with special needs take other forms. Teachers or therapists may equip certain children with safety helmets, or put seat belts on children who use wheelchairs. Textured walkways, sound generators on moving equipment, warning colors on railings and walls, and appropriate safety signs are particularly appropriate for students with special needs but also useful for able bodied children. Completely risk-free playgrounds do not exist, but careful planning and attention to details will avoid most predictable hazards.

• Accessibility

The Americans with Disabilities Act of 1990 (ADA) prohibits discrimination on the basis of disability in employment, public services, transportation, public accommodations - including many services operated by private entities, - and telecommunications. Title III of the legislation includes within the definition of public accommodation: "a park, zoo, amusement park, or other place of recreation"; a school, including nursery schools; a day care center; and a gymnasium, health spa, or "other places of exercise or recreation."

Specific Federal requirements for accessibility to playgrounds by the disabled are expected to be published.

The Department of Parks and Recreation in the State of California has advised that after January 1, 1991, regulations requiring that all types of play activity in new and redone play areas must be accessible to the disabled. Other states may similarly issue accessibility requirements. Playground designers, installers and operators are reminded that they should determine what Federal and State requirements for accessibility are in effect. These requirements could necessitate changes to existing playgrounds as well as when new playgrounds are planned or existing playgrounds refurbished.

Developmental Issues

Growth and development of all children are measured across several dimensions. Children may vary greatly along one or more of these dimensions. For example, children who fall at the low end of the scale for physical size may be at the top of the scale for intellectual development, or children with advanced motor skills may have poor social development. Children with special needs are perhaps the most obvious example of variation because they encounter unusual challenges along one or more dimensions. Ideally, the playground environment will enable all children to use their strong areas to compensate for areas requiring further development. The well-designed universal playground provides experiences to challenge all skill areas, and to accommodate all developmental stages.

• Social/Emotional Development

Many children with special needs require more support in the areas of social/emotional development than do other children. Children with a physical, or a sensory disability may have had limited opportunities to interact with other children, or may have been treated differently by the children they did encounter. Emotional immaturity is more commonly found in children with special needs particularly, until they acquire the experience required to develop acceptable social behavior. Children with severe social or emotional problems may lack internal controls, or may be too internalized, to be readily accepted by other children. Children with limited intellectual development often respond socially and emotionally like younger children. The universal playground environment should have areas that encourage social interaction and be easily supervised.

• Intellectual Development

Most children with special needs have normal intellectual development, however, it may be more difficult for some with pronounced physical, sensory, motor or emotional challenges to demonstrate this. Play areas which encourage intellectual exchanges can help facilitate integration among all children. Children with delayed intellectual development require experiences to enhance social, emotional and motor development. The universal playground needs to have a broad range of equipment and activities which appeal to all children, regardless of intellectual development.

• Sensory Development

Although many children have visual irregularities, or transient hearing difficulties, the actual prevalence of severe vision or hearing disabilities is very low. Children with severe visual impairments become more dependent on other senses, especially hearing and touch. Playground design and equipment incorporating texture, manipulative devices, bright colors, and sound are particularly helpful for children with low vision. In recent years, an increasing percentage of children with severe visual impairments have multiple handicapping conditions. This may require creativity in terms of including them in group play activities.

Children with hearing impairments also vary considerably in the degree of hearing loss represented. Most who are hard of hearing have usable residual hearing which may be enhanced by a hearing aid. Many children with hearing impairments have excellent motor skills and are capable of utilizing almost any piece of playground equipment. Children with profound hearing impairments encounter their greatest difficulties in the area of communication. The inability to understand the speech of other children and difficulty in making themselves understood, may create frustration, hamper social development and delay integration. For these children, informal activities on the playground can be very valuable.

• Perceptual-Motor Development

Some children with otherwise normal development in most other areas, encounter unusual difficulties with gross and fine motor coordination. Still others who appear to have normal hearing and vision, have trouble perceiving shapes, form, depth, movement or a variety of cognitive concepts. Frequently, this can result in learning disorders, although children may have average or above average intellectual ability. Many authorities attribute such difficulties to impaired or delayed neurological development. Whatever the cause, students with perceptual-motor delays may lack coordination, or have a tendency to be accident prone. Supervisory personnel may need to be more attentive to such children. In general, however, playground experiences are positive for these children and offer an opportunity to improve their coordination skills. Not all children identified as learning disabled exhibit poor coordination; some perform well in athletic activities and should certainly be encouraged.

• Physical Development

Children come in all shapes and sizes, and with varying degrees of strength. Children with special physical needs represent a small segment of the physical growth and development curve. Whether the physical impairment is the result of genetic defects, trauma, or disease, it presents an added challenge to children within the school setting. A major concern is with mobility for children who may require a wheelchair, braces, a prosthesis or some other adaptation to enable them to participate in all possible educational experiences. Because many children with physical disabilities move more slowly and require more space, there may be concern that they could interfere with the free passage of other children, create hazards, or monopolize the utilization of certain pieces of playground equipment. In designing the universal playground, multiple access and egress points, and additional space are needed to minimize potential problems.

• Age Factors

In recent years there has been a trend toward establishing separate playground facilities for pre-school and school-age children. In situations where dual playground facilities exist, the more challenging playground should also be supplied with a wide variety of equipment that might appeal to all ages. The basis for this is contained in the variations noted in the developmental scales. Since many children develop socially, emotionally, intellectually and motorically at varying rates, the universal playground needs to have a broader range of play experiences available to accommodate everyone.

Where a single playground is being developed, activity areas for younger and smaller children should be kept well away from the activity areas used by older, more active students. There should be at least one observation point on the universal playground that has a clear view of the entire playground to facilitate adult supervision. Placement of any new equipment or rearrangement of existing facilities should be done with this in mind.

Playground Adaptations

Site Development

The first major problem for children with significant mobility limitations may be gaining access to the playground site. When a playground is originally being designed, it should be placed in the most accessible location. Ideally, the universal playground should be located close to an accessible school entrance. It should also be near a parking area available to the general public, if the playground is to be used as a community facility.

• Parking and Curbs

In many instances, there is an existing playground environment which is being redesigned to include all children. In these circumstances it is important to ensure that access and egress to the facility are adapted for children with mobility impairments. Parking areas should have spaces designated for the handicapped which are at least 12 feet wide and marked with an accessibility symbol. Curb ramps, if necessary, should be placed where a wheelchair can reach the walkways without having to pass behind parked cars. Ramped curbs at street corners should have a change in surface texture as a warning to children with visual impairments.

• Walkways

Walkways should be at least 5 feet wide to enable two people in wheelchairs to pass in opposite directions. The gradient should not be greater than 5 per cent (7 inches) rise in 12 feet; and the slope perpendicular to the axis of travel should be no more than 1/2 inch in 4 feet. The surfaces should be smooth, without humps, wide seams, or grates with wide slots that might catch chair wheels or crutch tips. Surface treatments should be firm and provide good traction. Appropriate materials include timber, rubber, concrete, or asphalt which will not soften in hot weather. Loose gravel, bark, or cobblestones should be avoided. Where slopes or raised surfaces are unavoidable, handrails should be provided on at least one side. A variety of different surface textures, and a 6 foot border of crushed rock, will assist children with visual impairments maintain their orientation. Vegetation which extends into pathways should be removed and plants which drop seeds, or are toxic or thorny, should be eliminated.

• Surface Treatments

Over the years, playground designers have relied on three recommended protective surface materials; sand, pea gravel and wood/bark chips. All of these have advantages. The sand used is coarse, washed and does not pack. It absorbs impacts, drains well, is durable and responds well to sun and rain. Sand is also an attractive ground cover and its initial cost is low. Pea gravel is composed of small, round, smooth stones and has most of the same advantages as sand. It does not cling to clothing, get in children's eyes, or blow in a wind. However, it can be thrown much greater distances. Both materials can conceal sharp or dangerous items. Sand is more likely to be used as a cat litter box, and its effectiveness is reduced if wet, frozen, or mixed with soil.

Wood or bark chips make an attractive cover, are resilient, drain fairly well and are relatively inexpensive. Children are less apt to play with this material, and because of its acidic content, it is less likely to harbor insects or promote fungus growth. Wood and bark chips compact when wet, frozen, or pulverized. Through repeated play action, and their natural biodegradable nature, chips tend to decompose and become powered and an irritant to some children. Wood chips, like the other two materials, can conceal sharp or dangerous items.

Unfortunately the above materials are unsuitable for children with significant mobility problems. Because of the depth of the material needed to absorb impacts, and its soft consistency, children using wheelchairs, crutches or long-leg braces, cannot maneuver easily over it. Another option is manufactured surfaces. These are available from a number of vendors. These surfaces are usually made from rubber, PVC plastics, or a combination of the two, and can be obtained in a variety of colors and thicknesses. These surface materials are soft and elastic to absorb shock, but firm enough to support wheelchairs, crutches and other mobility devices. They are tough, durable, slip resistant and water permeable. In some instances, grass can be planted and will grow up through the surface. The major disadvantage of these surfaces is the cost of labor and materials. A considerable amount of labor for ground preparation is needed before laying the material, to assure smoothness and proper drainage, and the material itself is comparatively expensive. Some of this can be recovered over time through ease of maintenance.

Playground Layout

• Clearance

The arrangement of playground equipment determines the efficiency and utility of the play environment. For safety reasons, active play areas should be separated from walkways. Fixed items should have 10 feet of clearance space around them, and any moving equipment should have 17 feet of clearance. The clearance allocations for one item should not overlap those of another. Swing areas should have a clearance of 12.5 feet beyond the swing extension, and in all directions of the swing arc. Hand rails are often advised for placement around the clearance areas of moving playground equipment, and these are particularly helpful for children with low vision.

Children who use wheelchairs have restricted mobility, and limited reach. The following demonstrates the difference in the range of motion between an average size child (child 6-9 years old, 4 feet in height) standing as opposed to seated in a wheelchair.

Seated in a wheelchair

Easy side reach	12 inches
Easy forward reach	16 inches
Maximum forward reach	27 inches
High reach (forward)	40 inches
High reach (side)	50 inches
Full reach (down)	20 inches

Standing

Side reach	20 inches
Forward reach	18 inches
High reach (forward)	57 inches
High reach (side)	57 inches
Low reach (side)	20 inches

When installing items of equipment or activity areas, placement can be made within the range of motion for all children whether they are in a wheelchair or standing. Where this is not feasible, two similar items should be provided at differing heights or distances.

To accommodate wheelchairs, a surface area of at least a 60 inch diameter circle is needed for a wheelchair to make a 360 degree turn.

• Traffic Patterns

For the universal playground environment to accommodate the maximum number of children, equipment should be placed so that children do not become grid-locked in moving from one interest area to another. Where children with mobility challenges will be included, the time devoted to planning functional traffic patterns will be well spent.

Swings, merry-go-rounds, and other moving items should be located around the perimeter or at the corners of the play area. This helps prevent children from running into the path of these items, and separates the areas of greatest physical activity. By placing fixed pieces of equipment toward the center, it is possible to connect some of them with either bridges or tunnels so that some children can go over or under others when moving from one place to another.

Wherever possible, there should be two or more methods of access or egress for each piece of fixed equipment. A ramp or a slope with a handrail should be available for children with mobility disabilities, while other children use ladders or stairs.

• Practical Aesthetics

Ideally, the play environment should be pleasing to the eye as well as entertaining in function. The judicious use of trees and other plantings heightens the enjoyment of the play area for children and adults. By placing metal equipment in shaded areas, and orienting it to the north, heat build-up on items such as slides or teeter-totters can be reduced.

The use of different paint colors to delineate activity areas adds visual interest and assists children with visual impairments to maintain orientation in the play area. The use of colored surface treatments also complements the decor. Some integrated play facilities have introduced sound elements, especially with moving equipment, to serve safety and orientation functions.

Attractive rest and observation points provide space where children can relax and watch activities in the play area. These points also help playground supervisors and parents to supervise children. Benches and space for a wheelchair to make a 360 degree turn are required in these areas.

Variations in the play area's topography reduce visual monotony. Care must be taken to assure low areas are well drained. Where water stands, and the ground becomes soft, potential hazards are created for children who might stray off the firmer walkways.

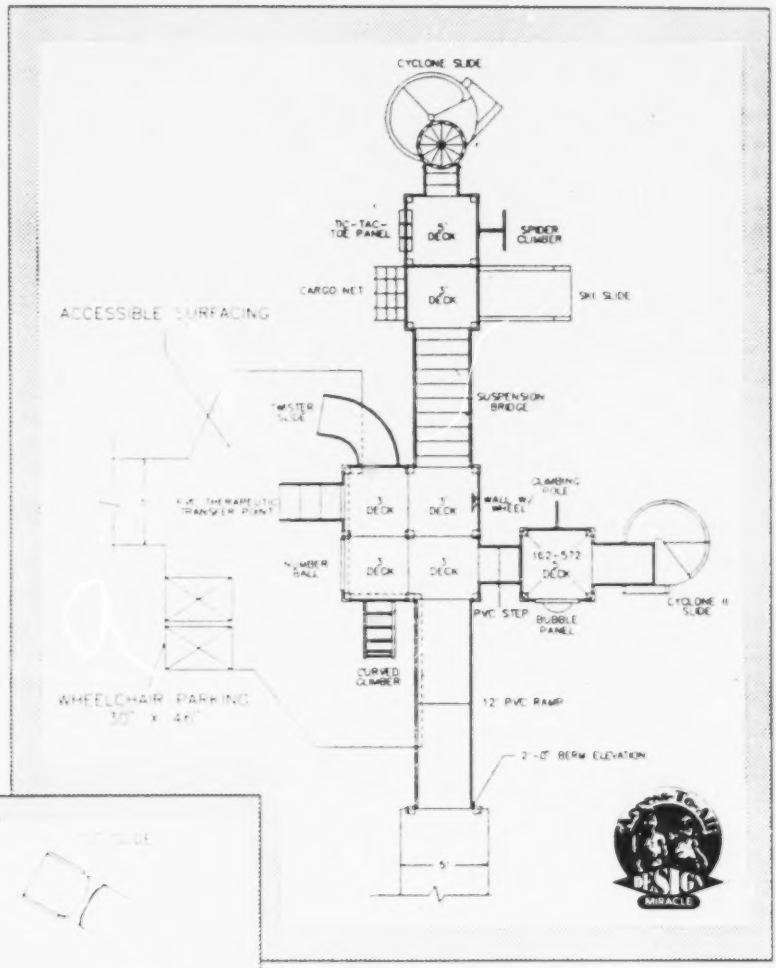
• Maintenance

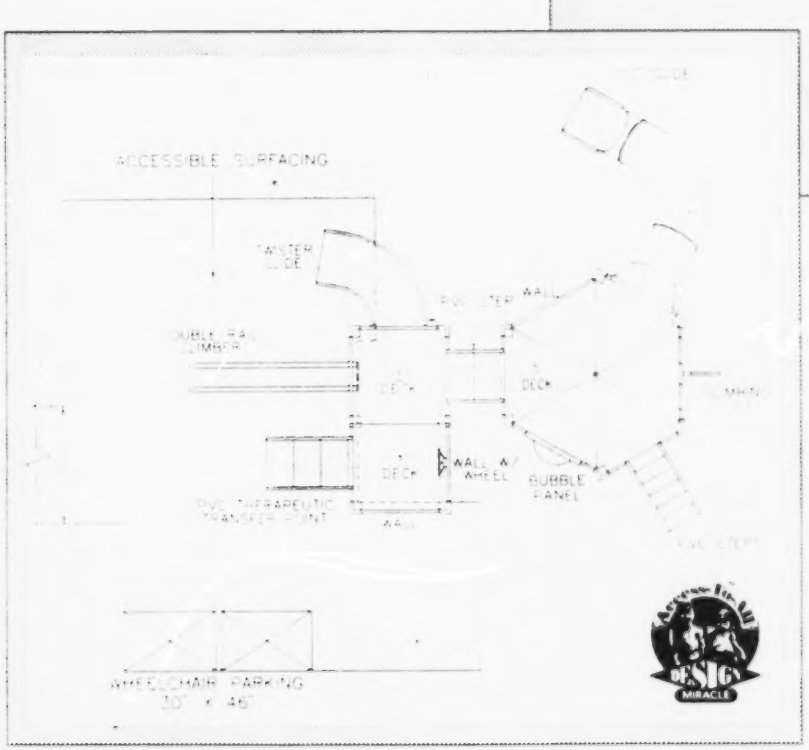
Another factor to be considered when planning the layout of the play area is the ease of maintenance. Ready access for mowing machines, and other maintenance vehicles is essential. Adult maintenance personnel must be able to access all parts of the play area to keep it clean and to check all the equipment for potential safety hazards.

Possible Equipment

Despite efforts to make universal playgrounds accessible to children with special needs, not all children will be able to use all equipment. Attempting to make every part of the universal play environment accessible to all children may reduce the challenge for some others, particularly those with superior physical skills. With adaptations, however, more of the playground can be used by children with special needs without reducing its value for others.

Several pieces of equipment are beneficial to all children. Some can be constructed by school personnel or volunteers, while others are available from vendors. Which pieces of equipment to install first is a decision that usually becomes apparent after a survey is made of the potential users of the playground. By prejudging the equipment some children can utilize, there is a danger of denying them the opportunity to challenge their abilities.





The following are descriptions of equipment items which are particularly suitable for all students. For convenience, these items are grouped according to the developmental area most likely to be challenged by the equipment. Many of the equipment items, however, will enhance several developmental areas.

Developmental Goals and Equipment Modifications

A. Social and Emotional Development

EQUIPMENT	GOALS AND BENEFITS*	DESCRIPTION	MODIFICATIONS
Work and Play Tables	Promotes quiet, cooperative activities alone or in small groups.	Tables may be plain or have inlaid design. Tables should have sturdy benches, preferably with back-rests.	•Space for a wheelchair. •Textured surface design.
Sand Table	Promotes quiet, cooperative play alone or in small groups. Encourages imagination, creative activites.	A sandbox mounted on a table.	•Space for a wheelchair. •Indentations around table to enable students with poor balance to stand.
Sand Crane	Promotes cooperation and social interaction.	A pulley system with a rubber scoop attached to a chain or cable. Requires 2 children to operate, one to fill the scoop and one to operate the pulley.	•Appropriate surface for a wheelchair. •Sound generated by pulley for student with visual impairment.
Play Counter	Encourages imaginative play with other children.	A counter top usually mounted under a platform which provides shelter.	•Appropriate surface and space for a wheelchair.
Play Hut	Encourages imaginative play. May also be used as a non-punitive time-out area.	Sheltered area with some privacy but open enough to easily supervise.	•Large enough to accommodate a wheelchair and 2 or 3 other children.
Steering Wheel	Encourages imaginative play either alone or with other children.	Steering wheel mounted on a post or beam.	•Mount at different heights so that one is accessible to students in wheelchairs. •Add a horn so that students with visual impairments can locate.
Sympathetic Swing	Promotes integration, cooperative interaction.	Geared to a neighborhood swing, it is propelled when the child's able bodied companion swings.	•A sound producing device enabling (a) students with visual impairments to locate and determine if in use, and (b) students with developmental delays to learn cause and effect.
Wheelchair Ramps	Encourages socialization.	Should be long enough to provide 1:12 grade and be 5 feet wide with handrails at two heights. Should be built to enable access to playground equipment. May also provide a play area for all.	As in description.
Tunnel	Encourages socialization.	Tunnel.	•Ramped access. •Textured areas to provide tactile orientation cues to students with visual impairments. •Large enough to enable either an adult or 2 children to go through together.
Wide Slide	Encourages socialization.	Double the usual width, enabling two children or one child with one adult to slide down side-by-side.	•Multiple access options including ramp for wheelchair.

* These goals and benefits may also promote an awareness of social responsibility by encouraging cooperative play among all children.

B. Perceptual Motor Development

EQUIPMENT	GOALS AND BENEFITS	DESCRIPTION	MODIFICATIONS
Tire Swing	Improves balance and coordination.	Swing with a tire for a seat, suspended from a single point. Can seat one or more children.	•None required.
Spring Teeter-totter	Improves balance and coordination.	Comes in models for two, three, four, or even more children. Safer than the traditional fulcrum teeter-totter.	•Provide a non-slip surface at center to enable child to lie there without slipping around.
Spring Rides	Improves balance and coordination.	Mounted on sturdy coil springs, topped by colorful stylized animal forms.	•Provide sound producing device to serve as auditory cue. •Back supports on animals seats.
Standard Swing	Improves balance and coordination.	Two point suspended swing with soft seat or supportive harness seat.	•Provide sound producing device to serve as cue for locating and determining when in use.
Log/Tire Roll	Improves balance and gross motor skills.	Mounted on an axle. Child stands on device while it rolls beneath his feet. Handholds are provided.	• Provide sound producing device to ensure auditory cue for locating and knowing when in use.
Balance Beams	Improves balance and gross motor skills.	Installed a short distance above ground.	•Provide non-slip surface.
Gadget Panel	Improves fine motor skills.	A panel on which various devices such as faucets, knobs, latches, dials and switches have been mounted.	•Provide gadgets at different levels. •Ensure wheelchair access. •Provide tactile and auditory cues.
Wide Slide	Improves perceptual/motor skills.	Double the usual width permitting 2 children or an adult and one child to slide together.	•Install on embankment to reduce risk of injury in case of falls.

Playground Equipment Manufacturers & Distributors

Achievement Products, Inc.
P O Box 547
Mineola, New York 11501
516-757-8899

All-American Recreation, Inc.
P O Box 8191
Tampa, Florida 33674
800-346-0085

Allstate Sales & Rentals
2109 Bloomfield Woods Court
West Bloomfield, Michigan 48033
313-DETROIT

American Playtime Systems, Inc.
230 Route 109
Farmingdale, New York 11735-1503
800-231-PLAY
516-454-7858

American Swing Products
1320 Fayette Street
El Cajon, California 92020
800-433-2573

Belson Manufacturing Company, Inc.
111 North River Drive
P O Box 207
North Aurora, Illinois 60542
800-323-5664

Big Toys
2601 South Wood Street
Tacoma, Washington 98409-4793
800-426-9788

Burke Company, Inc.
P O Box 549
660 Van Dyne Road
Fond du Lac, Wisconsin 54936-0549
414-921-9220

Childcraft Educational Corporation
20 Kilmer Road
P O Box 3081
Edison, New Jersey 08818-3081
800-631-5652

Children's Factory
505 North Kirkwood Road
St. Louis, Missouri 63122
314-821-1441

Clayton Company
P O Box 740007
Louisville, Kentucky 40201-7407
800-626-2177

Columbia Cascade Company
1975 S.W. Fifth Avenue
Portland, Oregon 97201-5293
503-223-1157

Community Playthings
Route 213
Rifton, New York 12471
914-658-3141

Creative Playgrounds, Ltd.
P O Box 10
McFarland, Wisconsin 53558
608-838-3326
800-338-0522

Creative Systems of California
11285 Sunrise Gold Circle # C
Rancho Cordova, California 95742
916-638-5375

Engan-Tooley & Associates
P O Box 4194
East Lansing, Michigan 48826
800-722-8546

Environments, Inc.
P O Box 1348
Beaufort Industrial Park
Beaufort, South Carolina 29901-1348
800-EICHILD

Flaghouse, Inc.
150 North MacQuesten Parkway
Room G437
Mt. Vernon, New York 10550
800-221-5785

Florida Playground & Steel Co.
4701 South 50th Street
Tampa, Florida 33619
800-444-2655

GameTime
P O Box 121
Ft. Payne, Alabama 35967
205-845-5610
800-235-2440

Gerber Manufacturing, Inc.
2917 Latham Drive
Madison, Wisconsin 53562
608-271-2777

Gerstung
6308-10 Blair Hill Lane
Baltimore, Maryland 21209
800-922-3575

Gyro North America
P O Box 1439
New London, New Hampshire 03257
800-225-7529

HAGS Play
Swedes Systems
2180 Stratingham Drive
Dublin, Ohio 43017
614-889-9026

Iron Mountain Forge
P O Box 897
One Iron Mountain Drive
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800-325-8828

Jack Golden & Associates
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East Detroit, Michigan 48021
313-772-4117

Jayfro Corporation
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Waterford, Connecticut 06385
800-243-0533

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Lake Orion, Michigan 48035
800-632-4153

Kee Industrial Products, Inc.
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Buffalo, New York 14225
800-851-5181

Kidsports Fun & Fitness Center
3026 Penn Avenue
West Lawn, Pennsylvania 19609
215-678-1630

Kompan, Inc.
80 King Spring Road
P O Box 3536
Windsor Locks, Connecticut 06.96
800-553-2446

Kraftsman Playground & Park Equipment
A Division of Playkraft, Inc.
12310 Old Foltin Road
Houston, Texas 77086-3514
713-447-7484
800-451-4869

Landscape Structures, Inc.
601 Seventh Street South
Delano, Minnesota 55328
612-972-3391
800-328-0035

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Boulder, Colorado 80306
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800-874-2667

Michigan Playground and Recreation Equipment, Inc.
2313 Beechwood
Royal Oak, Michigan 48073
313-588-8450

Michigan Products Inc.
1200 Keystone Avenue
P O Box 24155
Lansing, Michigan 48909-4155
800-444-1773

Miracle Recreation Equipment Company
P O Box 420
Monett, Missouri 65708
800-523-4202
417-235-6917

New England Camp & Recreation Supply Company
P O Box 7106
Dallas, Texas 75209
800-343-0210

Olympic Recreation
5811 East Dunes Highway
Gary, Indiana 46403
800-255-0153
219-938-3331

PCA Industries
5642 Natural Bridge
St. Louis, Missouri 63120
800-727-8180
314-359-4140

Playmate
Delmer F. Harris Company, Inc.
P O Box 278
Concordia, Kansas 66901
901-243-3321

Playworld Systems
P O Box 505
315 Cherry Street
New Berlin, Pennsylvania 17855
800-233-8404

Quality Industries, Inc.
Curtis Marketing Corporation
Hillsdale Industrial Park
P O Box 765
Hillsdale, Michigan 49242-0765
517-439-1591
800-766-9458
(made from recycled milk jugs)

Rainbow Play Systems, Inc.
5980 Rainbow Parkway
Prior Lake, Minnesota 55372
612-447-2553

Recreation Technology, Inc.
P O Box 1048
Dunkirk, Maryland 20754-1048
301-855-5348

Seavey Corporation
563 Collage Avenue
Holland, Michigan 49423
800-444-4954

Snitz Manufacturing Company
2096 South Church Street
East Troy, Wisconsin 53120
800-642-3991

Sportime
Select Service & Supply Company, Inc.
2905-E Amwiler Road
Atlanta, Georgia 30360
800-444-5700

Sutcliffe Leisure Inc.
3111 Broadway 4B
New York, New York 10027
212-865-1626

TotTime
P O Box 121
Fort Payne, Alabama 35967
205-845-5610

Ultra Play Systems, Inc.
724 W. Eighth Street
Anderson, Indiana 46016
800-45-ULTRA

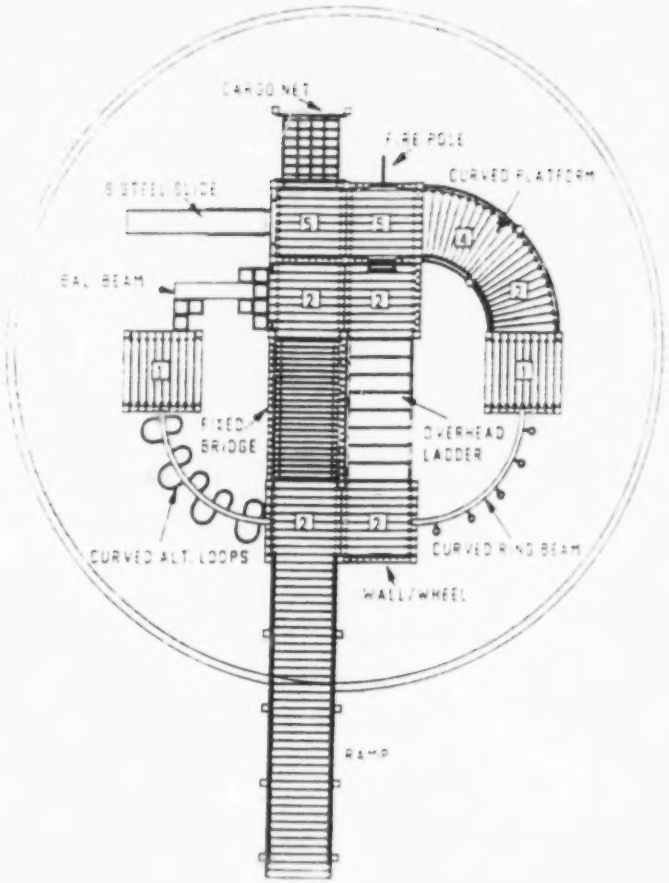
Victor Stanley, Inc.
Brick House Road
Dunkirk, Maryland 20754
301-855-8300

Wabash Valley Midwest
P O Box 5
State Road 15 North
Silver Lake, Indiana 46982
219-352-2168

Wapello Fabricators Company, Inc.
210 North 2nd Street
Wapello, Iowa 52653
319-523-8371

Wausau Tile
P O Box 1520
Wausau, Wisconsin 54402-1520
215-359-3121

Wooden Environments, Inc.
1890 Evergreen Avenue
Speonk, Long Island, New York 11972-0915
516-325-1020
800-662-0922



Playground Surface Materials

GREENPARK
Breakfall Inc.
759 North Milwaukee Street
Milwaukee, Wisconsin 53202
414-273-7828

PLAYGUARD
SUPERTOP
Carlisle Tire & Rubber Company
P O Box 99
1415 Ritner Highway
Carlisle, Pennsylvania 17013
717-249-1000
800-827-1001

RUFFHOUSE
Connor • AGA, Inc
251 Industrial Park Road
Amasa, Michigan 49903
906-822-7311
800-833-7144

FIBAR
The Fibar System
823 West Street
Harrison, New York 10528
1-800-FIBAR-A1

DINOFLEX SAFETY TILES
Kiefer Specialty Flooring, Inc
4211 Highway 173
Zion, Illinois 60099-4093
800-322-5448

TUFFTURF
Landscape Structures Inc
Route 3
601 7th Street South
Delano, Minnesota 55328
612-972-3391

SAFETY DECK
Mat Factory Inc.
1378 East Edinger Avenue
Santa Ana, California 92705
714-547-7623

E-Z FALL
Mitchell Rubber Products, Inc.
491 Wilson Way
City of Industry, California 91744
800-453-7526

SAFDEK
No Fault Industries
11325 Pennywood Drive
Baton Rouge, Lousiana 70809
800-232-7766

SECURITY BLANKET
Playfield Industries Inc
P O Box 1564
Williamsville, New York 14231-1564
1-800-263-5730

FALL SAVER
PLAY SAFE
PlaySafe Surfaces Inc
240 West Bristol Lane
Orange, California 92665
714-974-6282
800-875-5788

SAFE GUARD
Safe Guard Surfacing Corporation
493 North Country Road
St. James, New York 11780
516-862-1276

CUSHIONAIRE
Surfacing Concepts Inc
Tom Baines & Associates Inc
25875 Jefferson
St. Claire Shores, Michigan 48081
313-468-9888

TIRE TURF
Tire Turf Systems Inc.
P O Box 186
Harlan, Indiana 46743
219-657-5129

SHOCK TURF
Waste Reduction Systems
114 North Warpole
Upper Sandusky, Ohio 43351
419-294-1356

WOODCARPET
Zeager Brothers Inc
4000 East Harrisburg Pike
Middleton, Pennsylvania 17057

PAM Assistance Centre
601 West Maple Street
Lansing, Michigan 48906-5038
Telephone 1-800-274-7426
517-371-5897
Voice or TDD

C. Physical Development

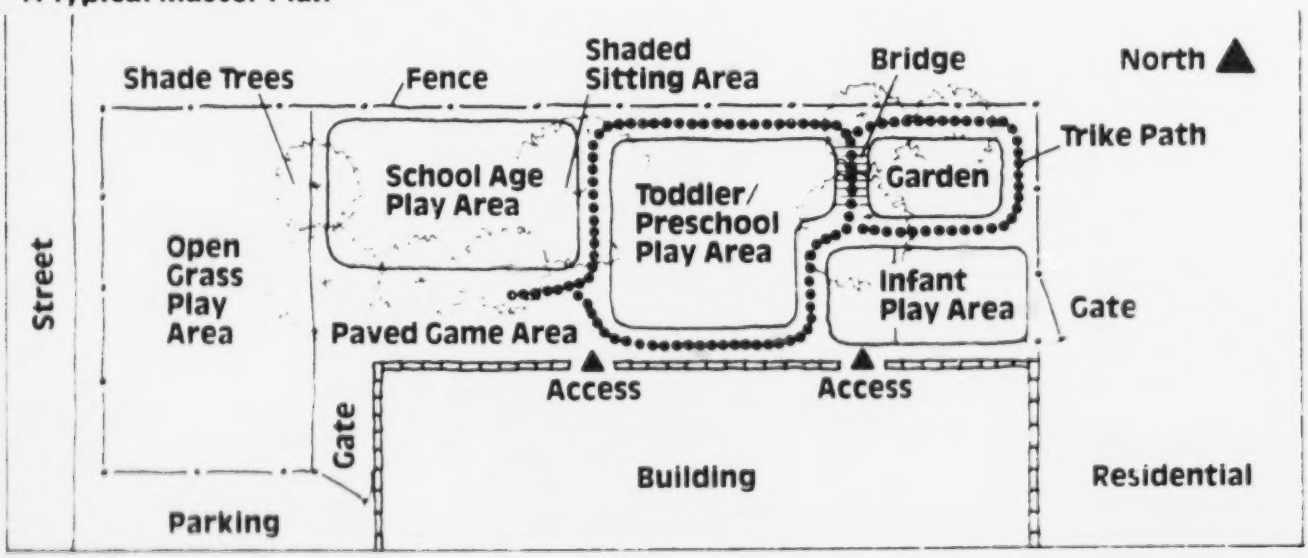
EQUIPMENT	GOALS AND BENEFITS	DESCRIPTION	MODIFICATIONS
Hand-over hand Bars	Improves upper body strength and coordination.	Overhead bars at different heights.	•Construct at different heights to enable access from wheelchairs.
Chinning Bars	Improves upper body strength.	Chinning bars at different heights.	•Construct at different heights to enable access from wheelchairs.
Parallel Bars	Improves upper body strength and coordination, and balance.	Can be either horizontal or inclined.	•Construct at different levels and of different widths to enable access by more children.
Adjustable Basketball Hoop	Improves upper extremity strength and eye-hand coordination.	Basketball hoop adjustable to different heights.	•Ensure wheelchair access. •Add some sound producing device to serve as auditory cue.
Cargo/Chain/Tire Nets	Improves upper and lower extremity strength.	Can also serve as safety device below high towers.	•Construct multiple means of access.
Tube and Half tube Slides	Improves upper and lower extremity strength.	Enables child to slide independently.	•Construct multiple means of access.
Stairs and Inclined Ladders	Improves upper and lower extremity strength.	Wide enough to permit children to pass going up, down or sideways. Can be negotiated using arms or legs.	•Ensure ramped access.
Bridges	Improves balance and coordination.	May be tire bridges, clatter bridges or other modifications.	•Accessible by wheelchair where appropriate. •Provide handrails at different heights. •Provide textured surfaces. •Provide auditory cues for locating and knowing when in use.

D. Sensory Development

EQUIPMENT	GOALS AND BENEFITS*	DESCRIPTION	MODIFICATIONS
Music Panel	Stimulates auditory discrimination.	Incorporates a number of music producing devices that can be sounded with a stick or by hand.	•Devices should be at varying heights to ensure access. •Ensure surrounding surface is wheelchair accessible.
Colored Panels	Stimulates visual awareness.	Different colored panels placed side by side or throughout the area.	•None required.
Bucket Table	Stimulates tactile awareness.	Table with water and a bucket or buckets.	•Provide access for students in wheelchairs. •Provide indentations around the table to help students with poor balance.
Sand Box or Table	Stimulates tactile awareness.	Table or box with sand in it and ideally covered when not in use.	•Ensure wheelchair access. •Provide indentation around table to help balance. •If box, provide backed seating in corners for students with poor balance.

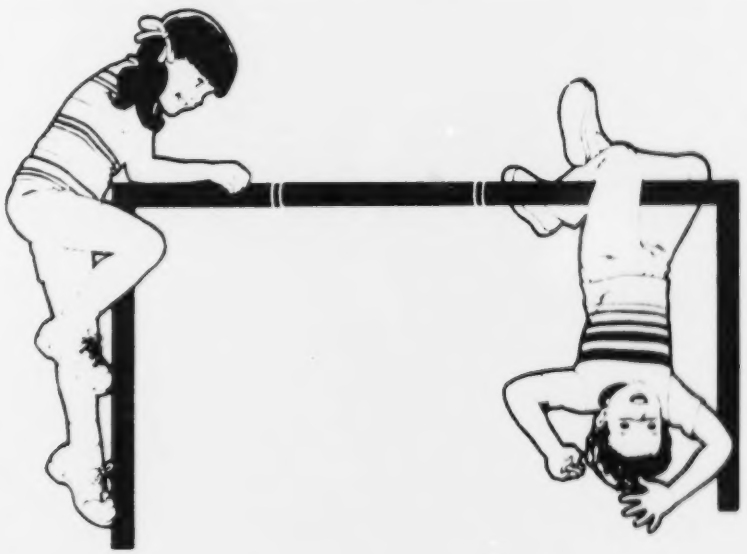
* These goals and benefits may also provide artistic and aesthetic development by encouraging auditory, visual and tactile awareness.

A Typical Master Plan



E. Intellectual Development

EQUIPMENT	GOALS AND BENEFITS	DESCRIPTION	MODIFICATIONS
Tunnel	Concepts of in, out, through and across.	Tunnel.	•Multiple means of access.
Bridges	Concepts of over, under, up, down, high and low.	May be clatter bridges, tire bridges or other modifications.	•Accessible by wheelchair where appropriate. •Provide handrails at different heights. •Provide textured surfaces. •Provide auditory cues for locating and knowing when in use.
Walls with colors and shapes on them	Concepts of shapes and colors.	Modular panels with different shapes cut out or with different colors.	•Ensure wheelchair accessibility.
Bucket Table	Concepts of conservation of material, volume and measurement.	Bucket table with water in it and a bucket or buckets.	•Provide access for students in wheelchairs. •Provide indentations around table to help students with poor balance.
Relief Maps	Improve orientation and develop spatial concepts.	Relief maps of playground.	•Ensure wheelchair accessibility.
Guide Rails	Improve orientation and develop spatial concepts.	Guide rails around and at strategic locations throughout the playground.	•Provide at different heights.



THE UNIVERSAL PLAYGROUND
PLANNING SURVEY

Dear Friend:

The Planning Committee of the Universal Playground is interested in your ideas for creating the ideal play environment for all children in the community. We would greatly appreciate your assistance in responding to the following items. (Please check the appropriate box(es)).

1. Which one of the following categories best describe your position?

- ☐ REGULAR TEACHER
- ☐ SPECIAL TEACHER
- ☐ OTHER
- ☐ STUDENT
- ☐ PARENT
- Please specify _____

2. Which of the following categories best describes you or your student's special needs?

- ☐ SOCIAL/EMOTIONAL
- ☐ PERCEPTUAL-MOTOR
- ☐ OTHER
- ☐ PHYSICAL
- ☐ INTELLECTUAL
- Please specify _____

3. What adaptations would be most useful?

- ☐ WIDE PARKING SPACE
- ☐ WIDE WALKWAYS
- ☐ HANDRAILS ON WALKWAYS
- ☐ RESILIENT IMPACT AREAS
- ☐ RAMPS TO HIGH EQUIPMENT
- ☐ REST/OBSERVATION AREAS
- ☐ OTHER Please Specify _____
- ☐ CURB RAMPS
- ☐ SMOOTH, NON-SKID WALKS
- ☐ TEXTURED RAMPS AND WALKS
- ☐ HANDRAILS AROUND EQUIPMENT
- ☐ COLORED AREA MARKERS
- ☐ SAFE TRAFFIC PATTERNS

4. Which of the following pieces of equipment would the student(s) most enjoy?

- ☐ WORK/PLAY TABLES
- ☐ PLAY COUNTER
- ☐ SYMPATHETIC SWING
- ☐ GEOMETRIC PANELS
- ☐ COLORED PANELS
- ☐ MERRY-GO-ROUND
- ☐ HAND-OVER-HAND BARS
- ☐ SPRING TEETER-TOTTER
- ☐ CARGO/CHAIN/TIRE NET
- ☐ TUBE AND HALF-TUBE SLIDE
- ☐ CHINNING BAR
- ☐ TIRE CRAWL BRIDGE
- ☐ OTHER Please specify _____
- ☐ SAND TABLE
- ☐ PLAY HUT
- ☐ CRAWL TUNNEL
- ☐ BRIDGES
- ☐ SAND BOX
- ☐ TIRE SWING
- ☐ BALANCE BEAM
- ☐ WIDE SLIDE
- ☐ GADGET PANEL
- ☐ SPRING RIDE
- ☐ PARALLEL BARS
- ☐ FIREMAN'S POLE
- ☐ SAND CRANE
- ☐ STEERING WHEEL
- ☐ PLAY TOWERS
- ☐ MUSICIAN'S PANEL
- ☐ BUCKET/WATER TABLE
- ☐ RELIEF MAP OF PLAYGROUND
- ☐ CARGO NET SWING
- ☐ STANDARD SOFT SEAT SWING
- ☐ ADJUSTABLE TETHERBALL
- ☐ MONKEY BARS
- ☐ ADJUSTABLE BASKETBALL HOOP
- ☐ STAIRS AND INCLINED LADDERS

5. Will student(s) be using the playground during out-of-school hours?

- ☐ YES
- ☐ NO

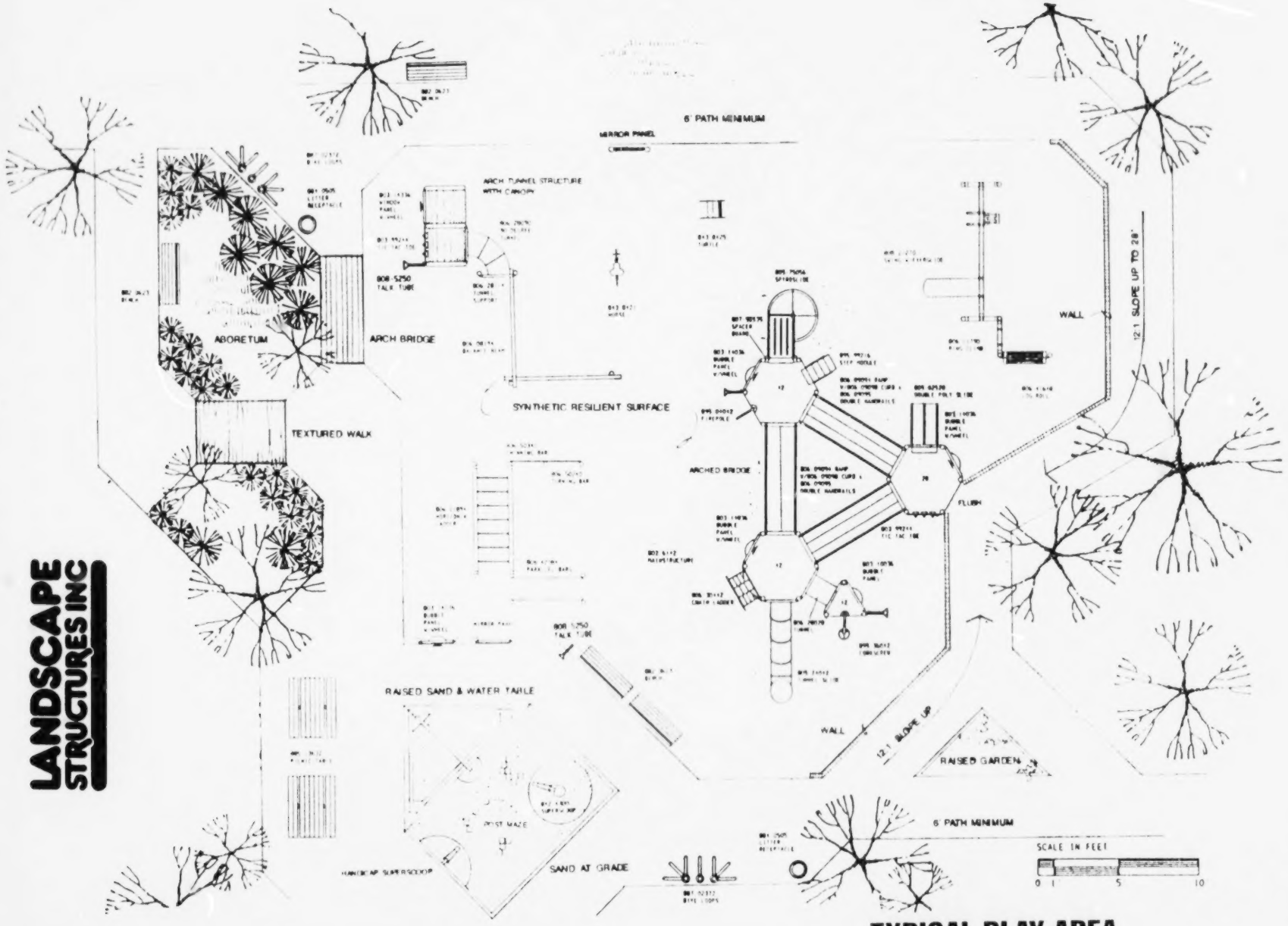
6. Comments or Suggestions

THE UNIVERSAL PLAYGROUND ACTION PLAN CHECKLIST

• Planning Steps	YES	NO
1. Has a commitment been made by the school district to develop a playground accessible to all children?	☐	☐
2. Has a planning committee representative of school professionals, the community and the consumer population been appointed?	☐	☐
3. Has the rationale for the project, with goals and objectives been formulated?	☐	☐
4. Have the problems and needs of the project been determined?	☐	☐
5. Has a work schedule with time lines leading to the completion of the project been developed?	☐	☐
6. Has an inventory including reference materials, articles, catalogs, and guidelines been accumulated?	☐	☐
7. Have all relevant government regulations and policies been reviewed?	☐	☐
8. Have the available levels of financial and personal resources been determined?	☐	☐
9. Has the decision been made whether or not a commercial contractor or an architect will be retained?	☐	☐
10. Have hearings, and/or a survey of potential users of the facility been conducted?	☐	☐
11. Has a list been developed of desired elements in the final plan?	☐	☐
12. Have the alternatives to be included immediately been included?	☐	☐
13. Have the remaining alternatives included in the final plan been prioritized for future inclusion?	☐	☐
14. Have potential sources of future funding been investigated?	☐	☐
15. Have working blueprints of the project been drawn up?	☐	☐
16. Have bids been let to contractors or construction begun by local personnel?	☐	☐
17. Has the project been publicized through various media sources and an opening day celebration planned?	☐	☐
18. Has a final inspection for safety and workmanship been conducted and certification of approval granted?	☐	☐

THE UNIVERSAL PLAYGROUND ACCESSIBILITY CHECKLIST

• Adaptation	YES	NO
1. Is there a wide parking space with an access symbol on it near the playground area?	☐	☐
2. Can a person in a wheelchair reach the walkways without having to pass behind parked cars?	☐	☐
3. Are there curb ramps to enable wheelchairs to reach the walkways?	☐	☐
4. Are the walkways at least 5 feet wide?	☐	☐
5. Are the walkways smooth with appropriate surfaces and proper gradients?	☐	☐
6. Do walkways have handrails on at least one side?	☐	☐
7. Has vegetation overhanging the walkway been removed and any toxic or thorny plants eliminated?	☐	☐
8. Have firm, but resilient materials been used to enable children with mobility problems to reach the access and egress points for each activity?	☐	☐
9. Are resilient materials provided at all places where potential impact may occur?	☐	☐
10. Are handrails or other barriers placed around all moving pieces of equipment?	☐	☐
11. Are there two or more methods to access or egress each piece of equipment?	☐	☐
12. Is a variety of color used to help orient children with visual impairments?	☐	☐
13. Are there rest areas provided out of the traffic pattern?	☐	☐
14. Are there appropriate (1:12 grade) ramps, at least 3 feet wide, to enable children with mobility impairments to reach all activity areas?	☐	☐
15. Has equipment been modified to enable access by children with special needs?	☐	☐
16. Are the landings wide enough to enable wheelchairs to turn?	☐	☐



LANDSCAPE STRUCTURES INC

15

TYPICAL PLAY AREA

This site drawing shows a playground that can be enjoyed by everyone. Extensive landscaping, including a small arboretum, provides a multisensory outdoor experience for visitors of all ages and abilities.

BEST COPY AVAILABLE

Resources

A Model Playground for the Multiply Handicapped. Office of Recreation and Park Resources, Department of Leisure Studies, Cooperative Extension Service, University of Illinois, Champaign, Illinois, September, 1982.

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Design Guide for Accessible Outdoor Recreation. Prepared by Interagency Guidelines Task Group for Accessible Outdoor Recreation, Washington, DC, September, 1990.

Handbook for Public Playground Safety. U.S. Consumer Product Safety Commission, Washington, DC, 1991.

Inclusive Recreation: Planning Recreation Opportunities for People of All Abilities. Michigan Department of Natural Resources, Recreation Division, Recreation Services Branch, February, 1992.

Lamport, Nancy. **A Magic Ground For Playing**. O.T. Week. November 2, 1989.

Stout, Janet. **Planning Playgrounds for Children With Disabilities**. The American Journal of Occupational Therapy. 42 (10)1988.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. **A Playground for All Children: Book-1 User Groups and Site Selection,** U.S. Government Printing Office, Washington, DC 20402, January, 1976.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. **A Playground for All Children: Book-2 Design Competition Program**, U.S. Government Printing Office, Washington, DC 20402, August, 1976.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. **A Playground for All Children: Book-3 Resource Book**, U.S. Government Printing Office, Washington, DC 20402, May, 1978.

Physically Impaired Association of Michigan
601 West Maple Street
Lansing, Michigan 48906

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